

WHAT IS CLAIMED IS:

1. A laser scanning microscope comprising:

a pulse laser oscillator configured to oscillate a pulse laser beam to excite a sample;

5 a photodetector configured to detect light from the sample and output an electric signal;

a sampling circuit configured to sample the electric signal output from the photodetector in synchronism with oscillation of the pulse laser beam
10 output from the pulse laser oscillator; and

a memory configured to accumulate data output from the sampling circuit.

2. The laser scanning microscope according to claim 1, further comprising a synchronous signal
15 generating circuit configured to detect oscillation of the pulse laser beam from the pulse laser oscillator, and output a synchronous signal in synchronism with the oscillation of the pulse laser beam, and wherein the sampling circuit samples the electric signal from the
20 photodetector in synchronism with the synchronous signal from the synchronous signal generating circuit.

3. The laser scanning microscope according to claim 2, wherein the synchronous signal generating circuit has a delay circuit configured to output a
25 trigger signal obtained by delaying the synchronous signal, and the sampling circuit samples the electric signal from the photodetector in synchronism with the

synchronous signal delayed by the delay circuit.

4. The laser scanning microscope according to claim 3, further comprising a pulse generator configured to generate a pulse signal in synchronism with the synchronous signal delayed by the delay circuit, and wherein the sampling circuit samples the electric signal from the photodetector in response to the pulse signal from the pulse generator.

5. The laser scanning microscope according to claim 3, wherein a delay set by the delay circuit is a fixed value.

6. The laser scanning microscope according to claim 3, further comprising means for changing a delay set by the delay circuit.

7. The laser scanning microscope according to claim 1, wherein the pulse laser oscillator is a mode locked ultra fast pulse laser which detects fluorescence from the sample due to multiphoton excitation.

8. A laser scanning microscope comprising:
a pulse laser oscillator configured to oscillate a pulse laser beam to excite a sample;

a photodetector configured to detect light from the sample and output an electric signal;

a laser oscillation synchronous signal generating circuit configured to receive a laser oscillation signal from the pulse laser oscillator and generate a

laser oscillation synchronous signal;

a delay circuit configured to delay the laser oscillation synchronous signal output from the laser oscillation synchronous signal generating circuit, and
5 output the delayed signal as a trigger signal;

a sampling circuit configured to sample the electric signal output from the photodetector in synchronism with oscillation of the trigger signal output from the delay circuit; and

10 a memory configured to accumulate data outputted from the sampling circuit.

9. The laser scanning microscope according to claim 8, wherein a delay set by the delay circuit is a fixed value.

15 10. The laser scanning microscope according to claim 8, further comprising means for changing a delay set by the delay circuit.

20 11. The laser scanning microscope according to claim 8, wherein the pulse laser oscillator is a mode locked ultra fast pulse laser which detects fluorescence from the sample due to multiphoton excitation.

12. A laser scanning microscope comprising:

25 a pulse laser oscillator configured to oscillate a pulse laser beam to excite a sample;

a photodetector configured to detect light from the sample and output an electric signal;

a laser oscillation synchronous signal generating circuit configured to receive a laser oscillation signal from the pulse laser oscillator and generate a laser oscillation synchronous signal;

5 a delay circuit configured to delay the laser oscillation synchronous signal output from the laser oscillation synchronous signal generating circuit, and output the delayed signal as a trigger signal;

10 a pulse generator configured to generate a pulse signal in synchronism with the trigger signal output from the delay circuit;

15 a sampling circuit configured to sample the electric signal output from the photodetector in synchronism with the pulse signal output from the pulse generator; and

a memory configured to accumulate data outputted from the sampling circuit.

13. The laser scanning microscope according to claim 12, wherein the pulse generator outputs the pulse signal during an output period in which an external input circuit outputs a signal to the microscope, and the sampling circuit samples, during the output period, the electric signal output from the photodetector.

14. The laser scanning microscope according to claim 12, wherein a delay set by the delay circuit is a fixed value.

15. The laser scanning microscope according to

claim 12, further comprising means for changing a delay set by the delay circuit.

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